

NOTES ON THE ACANTHOCHITIDÆ WITH DESCRIPTIONS OF NEW
AMERICAN SPECIES.

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The family Acanthochitidæ includes Chitons having the exposed surface of the valves, when present, divided into a narrow dorsal smooth or striated band, sometimes obsolete, with a granular area on each side, formed by the union of the lateral areas and the plural tracts of the central areas. The *Cryptoplacidæ* also share this peculiar plan of valve-sculpture, but they are vermiform in shape and not nearly covered above by the valves, whilst the *Acanthochitidæ* have well-developed valves covering the upper surface, even in those genera like *Amicula* and *Cryptochiton* which have the girdle-skin extending over the larger part or the whole of the dorsal armor. There are many other differences, but still the *Cryptoplacidæ* give unmistakable evidence of their descent from *Acanthochitidæ*. On the other hand, all other Chitons differ in having the valves divided into triangular lateral, and wide central areas, and in other equally important if less obvious features.

The following genera belong to Acanthochitidæ: *Spongiochiton*, *Leptoplax*, *Acanthochites*, *Katharina*, *Amicula*, *Cryptochiton*. All but the first two are found upon the United States coasts. It will be noticed that the association of *Acanthochites* with *Mopalia*, instituted by Dr. Philip Carpenter, is not retained.

Some naturalists may find it difficult to believe that complex structures so very similar to each other as are the posterior valves in *Mopalia* and *Acanthochites* could have arisen independently; but that this is the fact I feel entirely assured. In the two cases, this peculiar form of two-slit and sinused posterior insertion-plate, arose from a perfectly regular, even, and many-slit plate; the two phyla travelling along parallel roads. The Mopaloids reach their culmination in *Plaxiphora*, which has lost its two posterior slits, and is in this respect quite analogous to an old individual of *Cryptochiton stelleri*.

The genus *Acanthochites*, which has given its name to the family, is readily recognized by the series of tufts of fine bristles, like spunglass, along each side. These tufts may be accounted for by the theory that they are the result of over-nutrition caused by the frequent flexure of the girdle at the sutures; this flexure naturally bringing a greater share of nutriment to the stimulated point than

to the comparatively motionless portion at the sides of each valve, resulting in a more exuberant growth of girdle spicules there.

Within the *Acanthochites* stock the progressive diminution of the tegmentum or outer layer of shell, has proceeded along two lines: in one series of forms the girdle has encroached at the sutures, producing a heart-shaped exposed area, seen in such species as the *Notoplax*, and this system has also produced the *Amiculas*. In the others, the tendency has been to encroach along the sides of the valves, leaving a narrow or linear tract, resulting in forms like *Acanthochites exquisitus*, and culminating in *Cryptoconchus* (*C. monticularis* Q., and *floridanus* Dall.)

Acanthochites is divisible into four sections: *Acanthochites* typical, having a wide caudal sinus and two slits in the tail valve, and well-developed sutural tufts; *Notoplax*, having several slits in the tail-valve behind, and the girdle encroaching at the sutures; *Cryptoconchus*, having a similar tail-valve, but the girdle encroaches at the sides, leaving only a linear dorsal area exposed; and finally, *Loboplax* (sect. nov.), with a many-slit tail-valve, the head valve strongly 5-lobed and ribbed, girdle nearly naked—type *A. violaceus* Quoy. The following two species belong to the typical section:

A. exquisitus n. sp. Visible portions of the valves extremely narrow, generally less than one-fourth the entire width of the dried animal. Valves dark olive, interior blue; the girdle light green, tufts very large, either green, pink or bronze; fleshy covered with a green pubescence. Length 30, breadth 18 mill. La Paz (Lockington).

The valves are more covered than in any other form, the tegmentum being far less in area than one of the sutural laminae.

A. rhodens n. sp. Exposed portion of valves subtriangular, about one-third the entire width, the valves depressed, obtusely carinated, brown, almost separated by the encroachment of the girdle at the sutures. Median area smooth, not striated. Interior deep rose colored. Length 28, breadth 15 mill. Panama (MacNeil).

A. (Notoplax) hemphilli n. sp. Valves heart-shaped, about one-third the total width; red, more or less maculated with white; girdle rust-brown; dorsal area having some longitudinal striae. Interior light green at the sides, deep rose-red in the middle. Girdle wide, sparsely clothed with microscopic hyaline spicules, having a marginal row of longer spicules and 18 small white tufts. Length 24, breadth 11 mill. Key West, Florida (Hemphill).